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Foundations of Databases and SQL Programming

Assignment 06

SQL Views and Other Tools

# Introduction

This document introduces SQL views in addition to discussing similar tools, including functions and stored procedures.

# SQL Views and Their Use

SQL views can be utilized for multiple purposes. Two primary uses of SQL views include using views to create an abstraction layer within a database and using views to store code within a SQL database.

SQL views can be used as an abstraction layer to protect a database from unwanted updates, insertions, or deletions. Views in this setting are generated by copying all the data from an original table within a database to a new table within the view; certain permissions can then be set to the original and copied table. This ensures users are selecting data from the copied table and do not have the ability to select, insert, update, or delete items from the original tables. This is called creating a “base” or “basic” view (Randal Root Module 06 Notes). Figure 1 presents simple code that can be utilized to achieve this.

Graphical user interface, text, application

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Figure 1. Creating a view and setting permissions.

SQL views can also be utilized to store complex pieces of code. By using views to store complex code, they allow the database to be accessed more easily by end users. For example, if there is information from multiple tables a user wants to be able to query but the user is not comfortable with SQL joins, a view can be created that combines the tables needed so the end user does not have to undertake the join themselves. Figure 2 provides an example of such a join (Randal Root Module 06 Notes).

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Figure 2. View containing a join clause.

# SQL Views, Functions, and Stored Procedures

SQL views, functions, and store procedures are all similar in the fact they allow data or select SQL views, functions, and store procedures are similar as they allow data or select statements to be stored in a SQL database. Views are the most restrictive of the three, and only allow for select statements returning a table of values. Custom functions are less restrictive and can be used to return a table of values or a single value, unlike views which will not allow the returning of a single value. Additionally, functions accept parameters, which can be run through the code contained in a function. Stored procedures are more similar to functions than views and are used to save a set of SQL statements. Stored procedures also accept parameters, like functions. Views, functions, and stored procedures are all created using similar code (Figure 3), but become nuanced with what is able to be included in the SQL statements they are able to store (Randall Root Module 06 Notes).

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Figure 3. Creating views, functions, and stored procedures (Randall Root Module 06 Notes).

# Conclusion

This document aims to SQL views and discuss when they are used, in addition to discussing the similarities and differences between SQL views, functions, and stored procedures.